TORRANCE COMMUNITY
SPORTS PARK

ELECTRICAL CONSTRUCTION NOTES

1. THE GENERAL CONDITIONS AND SUPPLEMENTARY GENERAL CONDITIONS SHALL BE CONSIDERED AS PART OF THE SPECIFICATION.
2. FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND TOOLS TO PERFORM ELECTRICAL WORK SHOWN, NOTED OR SCHEDULED FOR A COMPLETE AND FINISHED INSTALLATION.
   A. ALL MATERIALS AND EQUIPMENT SHALL BE COMMERCIAL AND SHALL CARRY A U.L. LABEL.
   B. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SUCH AS APPEAR ON THE UNDERWRITER'S LABORATORIES LIST OF APPROVED ITEMS AND SHALL MEET REQUIREMENTS OF ASTM, IEEE, 2008 NEC, NEMA, AND OTHER RECOGNIZED STANDARDS AND SHALL BE SIZED IN CONFORMITY WITH REQUIREMENTS OF THE NATIONAL ELECTRIC CODE AND OTHER APPLICABLE CODES, WHICHEVER ARE MORE STRINGENT.
3. THE WORD "PROVIDE" AS USED HEREIN MEANS TO FURNISH AND INSTALL COMPLETE.
4. THE PROJECT SHALL COMPLY WITH TITLE-24 STANDARDS, INCLUDING 2010 CALIFORNIA BUILDING CODE (CBC). ALL WORK TO BE IN ACCORDANCE WITH THE 2010 CEC AND ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION CERTIFICATES.
6. ABOVE GRADE CONDUIT SHALL BE STANDARD RIGID STEEL ACCORDING TO CODE REQUIREMENTS. CONDUIT SHALL BE CONCEALED IN FINISHED AREAS, EXCEPT AS OTHERWISE APPROVED BY ARCHITECT. RIGID CONNECTIONS SHALL BE COMPRESSION TYPE. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 OR 80 PVC BURIED A MINIMUM OF 24".
7. WIRE SHALL BE COPPER CONDUCTORS WITH 600 VOLT INSULATION. ALUMINUM CONDUCTORS ARE NOT PERMITTED. #10 AND LARGER SHALL BE STRANDED. MINIMUM WIRE SIZE SHALL BE #10. ALL WIRE AND CABLE SHALL BE NEW AND SHALL BE BROUGHT TO THE SITE IN UNBROKEN PACKAGES. ALL WIRING OF ANY TYPE SHALL BE IN CONDUIT.
   A. GENERAL WIRING SHALL BE THWN OR THHN.
8. ABOVE GRADE WIRE CONNECTORS SHALL BE BY "SCOTCHLOCK" OR EQUAL FOR #8 OR SMALLER AND T&B "LOCK-TITE" FOR #6 AND LARGER.
9. THIS CONTRACTOR SHALL DO ALL CUTTING, CHASING OR CHANNELING AND PATCHING REQUIRED FOR ANY WORK UNDER THIS DIVISION. ANY CUTTING SHALL HAVE PRIOR APPROVAL OF THE OWNER.
10. PROVIDE SAFETY AND DISCONNECT SWITCHES, SHALL BE FUSED OR NON-FUSED AS CALLED FOR ON DRAWINGS AND AS REQUIRED BY CODE. SWITCHES SHALL BE HEAVY DUTY, LOAD AND HORSEPOWER RATED AS MANUFACTURED BY SQUARE D, GENERAL ELECTRIC OR EQUAL.
11. JUNCTION, PULL BOXES AND COVERS SHALL BE GALVANIZED STEEL, CODE GAUGE SIZE AND ACCESSIBLE.
12. ELECTRICAL CONTRACTOR SHALL RECORD ALL FIELD CHANGES IN HIS WORK AS THE JOB PROGRESSES, AND UPON COMPLETION SHALL TURN OVER TO THE OWNER A "RECORD" SET OF PRINTS SHOWING THE CHANGES.
13. ALL ELECTRIC WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING MAINTAINING AND REPAIRING. HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL, SUCH AS CHANNELS, RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK AND SHALL BE FASTENED TO STEEL, CONCRETE OR MASONRY, BUT NOT TO PIPING. ALL CONDUIT SHALL BE CONCEALED WHERE POSSIBLE. EXPOSED CONDUITS SHALL BE IN STRAIGHT LINES PARALLEL WITH OR AT RIGHT ANGLES TO COLUMN LINES OR BEAMS AND SEPARATED AT LEASED 3" FROM WATER LINES WHEREVER THEY RUN ALONGSIDE OR ACROSS SUCH LINES. CONDUCTORS SHALL BE ON CONDUIT, DUCTS, OR APPROVED RACEWAYS.
14. ALL 90 DEGREE ELBOWS TO BE FACTORY MADE BENDS.
15. PRIVATE LIGHTING SYSTEM SHALL NOT BE JOINT TRENCH WITH PUBLIC UTILITY SYSTEM.
16. CONTRACTOR TO MAINTAIN PROPER SEPARATION AS REQUIRED BY THE UTILITY COMPANIES.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR ANY AND ALL UTILITY AND CITY INSPECTIONS.
18. ALL GROUND CONDUCTORS SHALL BE SPLICED TOGETHER WITH APPROVED CONNECTOR AT PULL BOXES AND CONNECTED TO GROUND LUG INSIDE POLE.
19. SEE IMPROVEMENT PLANS FOR SITE, SEWER AND WATER (ETC.) IMPROVEMENTS PRIOR TO START OF CONSTRUCTION.
20. CONTRACTOR SHALL CONTACT "DIG ALERT" FOR MARK-OUT PRIOR TO TRENCHING AS REQUIRED.
21. THESE PLANS ARE SCHEMATIC AND ARE FOR THE PURPOSE OF SHOWING HOW TO CONNECT THE ELECTRICAL SYSTEM. WHILE THE DRAWING IS AT ACTUAL SCALE, THE SYMBOLS REFERENCED ARE NOT, AND MAY APPEAR TO SHOW THE EQUIPMENT IN PLACES NOT INTENDED. THE CONTRACTOR IS TO FIELD VERIFY ALL UTILITY COMPANY SERVICE POINTS/METER LOCATIONS, POLES, PULL BOXES BUILDING LIGHT LOCATIONS, SERVICE EQUIPMENT LOCATIONS AND OTHER ELECTRICAL APPURTENANCES PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES ARE TO BE ADDRESSED TO THE CITY BY MEANS OF A "REQUEST FOR INFORMATION" (RFI). CONTRACTOR IS TO VERIFY ALL LIGHT LOCATIONS WITH THE CITY PRIOR TO START OF CONSTRUCTION AND DURING STAKING. REFER TO LIGHT STANDARD DETAIL FOR STANDARDS.
    CONTRACTOR SHALL CONTACT "DIG ALERT" FOR MARK-OUT PRIOR TO TRENCHING AS REQUIRED.
22. PANEL CIRCUIT DIRECTORY TO COMPLY WITH SECTION 408.4, CEC.
23. NATIVE SOIL SHALL BE ACCEPTABLE FOR TRENCH BACK FILL PROVIDED THAT THE FILL MATERIAL USED SHALL PASS THROUGH A 1" SIEVE. SEE NOTES & DETAIL C/EL-03.
24. CONTRACTOR SHALL LABEL EACH CIRCUIT WITH PHENOLIC PLASTIC LABEL TAGS IN ANY DEVICE THAT HAS ACCESS. THIS SHALL INCLUDE LIGHT POLES, PULL BOXES, PANELS, AND ETCETERA. PANEL, CIRCUIT NUMBER AND VOLTAGE SHALL BE IDENTIFIED. TAGS SHALL BE AFFIXED WITH NYLON ZIP-TIES.

SPECIFICATIONS

1. ALL PULL BOXES TO BE TYPE 3-1/2 PB (10-1/2" X 17-1/2" X 12"D) WITH CONCRETE BOLT DOWN COVER MARKED "ELECTRICAL" (BL WALLACE DISTRIBUTION (714) 761-2071, BOX-C9EB, LID-C9R06). LEAVE 3' SLACK OF CONDUCTORS IN PULLBOX. SIZE PER SECTION 370-28, CEC. PROVIDE WITH McCAIN VANDAL RESISTANT PULL BOX INSERTS. 760/727-8100.
2. FUSE HOLDERS TO BE WATERPROOF AND UL LISTED.
3. ALL CONDUIT BELOW GRADE TO BE MINIMUM 1" PVC SCHEDULE 40.
4. ALL SPLICES BELOW GRADE SHALL BE MADE IN APPROVED PULL BOXES AND SHALL BE WATERTIGHT. USE ONLY EPOXY ENCAPSULATED TYPE 3M BAGS OR EQUAL.
5. ALL BELOW GRADE CONDUIT SHALL BE SEALED UPON COMPLETION OF INSTALLATION.
6. ALL ELECTRICIANS TO HAVE PROOF OF CALIFORNIA ELECTRICIANS CERTIFICATE/CREDENTIALS.

LEGEND

BELOW GRADE ELECTRICAL CONDUIT AND WIRE RUN. SEE PLANS FOR TYPE AND # OF WIRES.

SCE SERVICE POINT. VERIFY EXACT LOCATION WITH UTILITY WORK ORDER.

MMS1 — 400A, 3Ø, 4W, 277/480V SWITCHGEAR MMS1. SEE PLAN FOR LOCATION AND A/EL-03 FOR SCHEDULES AND DETAILS

CONCRETE UNDERGROUND PULLBOX. SEE SPEC. 1 AND DETAIL B/EL-03.

MMS1-1 — CIRCUIT DESIGNATION. 1ST # INDICATES PANEL. REMAINING #'S INDICATE CIRCUIT POSITIONS.

S1 — TYPE 'A', 9 HEAD MUSCO SPORT LIGHT WITH POLE DESIGNATION.

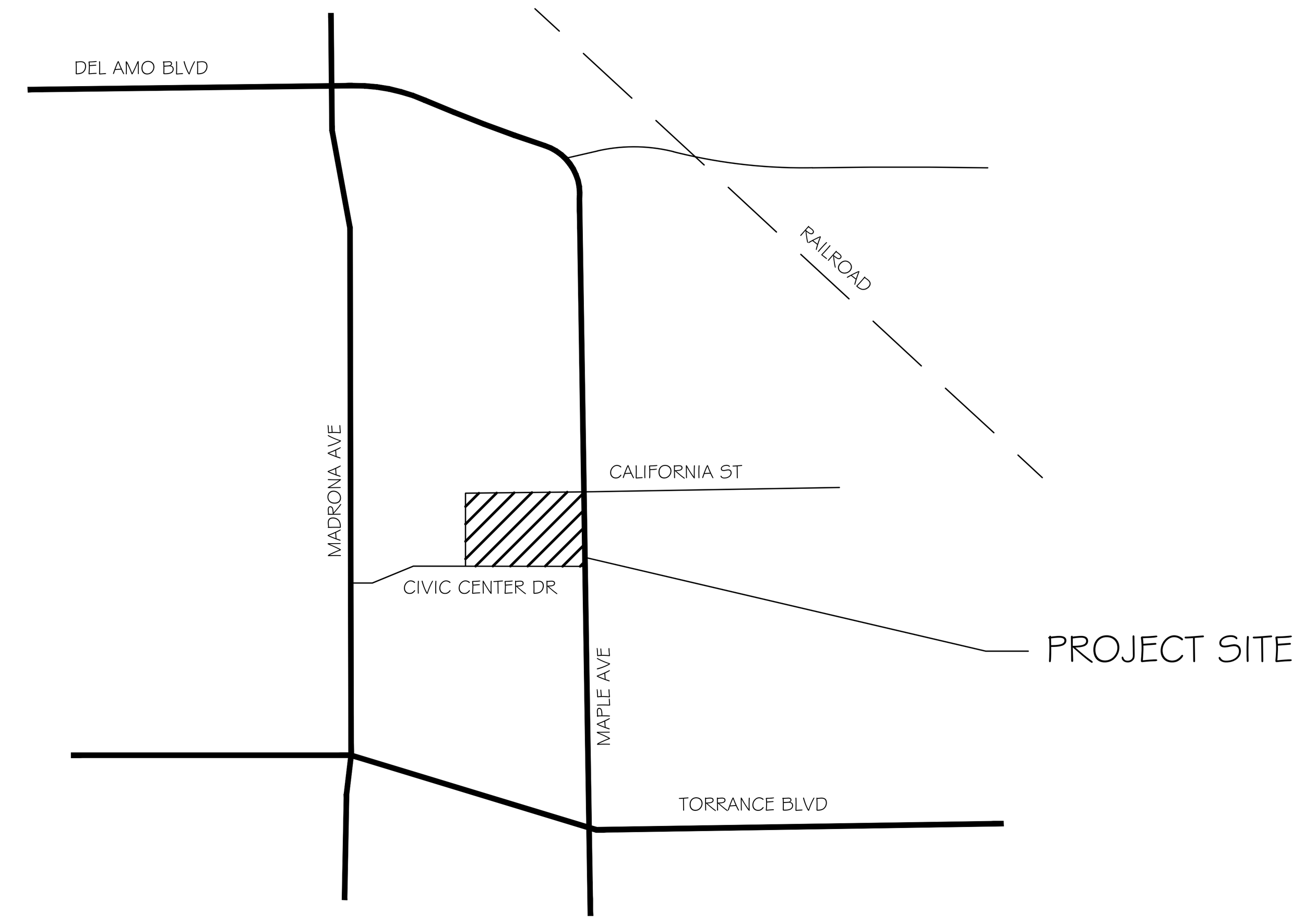
TYPE 'B', SITE LIGHT. SEE SCHEDULE AND DETAIL E/EL-03

TYPE 'C', SITE LIGHT ATTACHED TO MUSCO SPORT LIGHT WITH POLE SEE SCHEDULE AND DETAIL E/EL-03

IRRIGATION CONTROLLER. VERIFY EXACT LOCATION.

SHEET INDEX

SHEET #	DESCRIPTION
EL-01	NOTES, SPECS, LEGEND, SCHEDULE
EL-02	LIGHTING PLAN
EL-03	INSTALLATION DETAILS
EL-04	MUSCO INSTALLATION DETAILS



VICINITY MAP N.T.S.

LUMINAIRE SCHEDULE

	COUNT	TYPE	SYMBOL	FIXTURE: HALOG	INDUC	LED	LPS	MH	HPS	VOLTS: 120	240	12	480	LAMPS: NO.	TYPE	WATTS	MOUNTING: WELL	SURF	H2O	WALL	POLE	DESCRIPTION	MFR & CATALOG NO.
	10	A						X			X			9	1500 MH	5400					X	SPORTS LIGHTS-36 LIGHTS SEE DETAIL D/EL-04	MUSCO SPORTS LIGHTING (PROJECT# 163165) LSG80AA-1500W-9 (POLES S1-S10)
*	1	B				X					X			1	40 LED	91					X	SITE LIGHTS- SEE DETAIL E/EL-03	CREE LED STR-LWY-3M-DA-04-E-UL-BZ-700-40K-ML POLE-PS4S20C-1-BZ ADAPTER-PD-1HR-BZ
*	6	C				X					X			1	40 LED	91					X	SITE LIGHTS- SEE DETAIL E/EL-03 (MOUNTED TO MUSCO POLE)	CREE LED STR-LWY-3M-DA-04-E-UL-BZ-700-40K-ML ADAPTER-SIDE POLE MOUNTED-BZ

* DISTRIBUTOR TO CALL TOM BRINDLY OF WESTERN LIGHT SOURCE (702-466-2120) FOR CREE LED PRICING.

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REGISTERED PROFESSIONAL ENGINEER
MILTON C. NIEDERHAUS
No. E 8636
ELECTRICAL
EXP. 9/14
STATE OF CALIFORNIA

REVISIONS

1. 1ST SUBMITTAL 6-10-13
2. CITY PLAN CHECK REV. 7-23-13
3. PLAN REV. 8-28-13
4. PLAN REV. 8-29-13

SPORTS FIELDS
AT 555 MAPLE AVENUE
City of Torrance, California 90503

Electrical Plans
Tract #

City of Torrance
3031 Torrance Blvd.
Torrance, CA 90503
(310) 781-7559

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-PRODUCERS OF LIGHTING FUSION-
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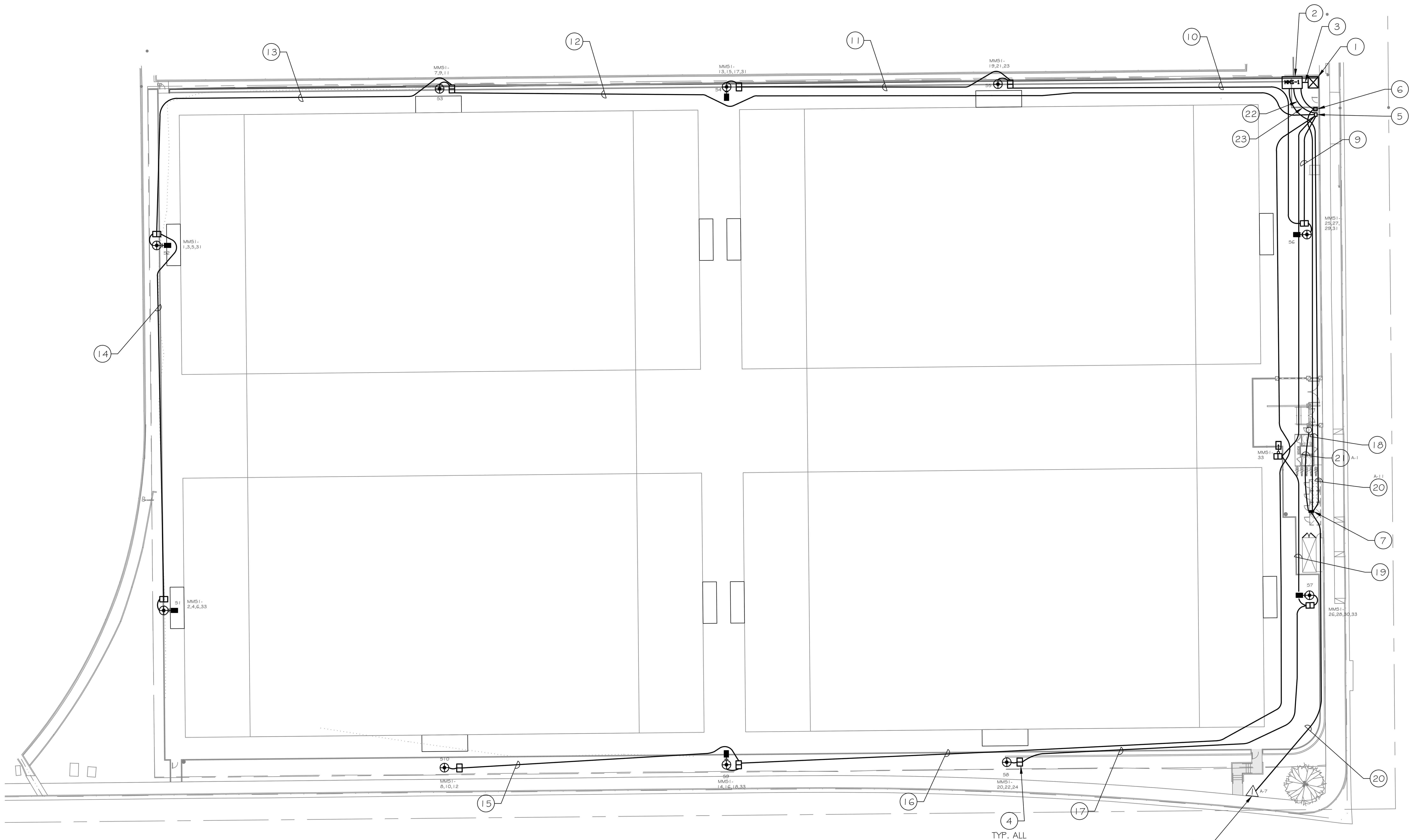
www.visualconcepts-inc.com

project manager: K. PEREZ
approved by: M. NIEDERHAUS
drawn by: K. PEREZ
date: 08/14/13
scale: N/A

SHEET 1 of 4

City of Torrance: 555 Maple Sports Field



PLAN NOTES

1. SCE TRANSFORMER. SEE SCE WORK ORDER FOR INSTALLATION REQUIREMENTS.
2. 277/480V, 400A, 3Ø, 4W SWITCHGEAR MMS1. SEE DETAIL A/EL-3.
3. PROVIDE DB CONDUIT ONLY WITH 3/16" POLY-PROPYLENE PULL ROPE. INSTALL PER SCE WORK ORDER.
4. PROVIDE CONCRETE UNDERGOUND PULLBOX WITH EVERY LIGHT POLE. SEE SPEC. 1 AND DETAIL B/EL-03.
5. MUSCO SPORTS LIGHTING CONTROL CABINET. SEE 1-LINE DIAGRAM DETAIL A & D/EL-3 AND CONTROLS SUMMARY ON SHEET EL-03.
6. 480-120/240V STEP-DOWN TRANSFORMER 'T1'. SEE 1-LINE DIAGRAM DETAIL A & F/EL-0.
7. EXISTING 120/240V PANEL 'A' SUPPLIED AND INSTALLED BY BUILDING MANUFACTURER. CONTRACTOR TO MAKE ELECTRICAL CONNECTION IN PULL BOX.
8. IRRIGATION CONTROLLER. VERY EXACT LOCATION WITH LANDSCAPE PLANS
9. PROVIDE 2"C-14#8 (MMS1-13,15,17 (2 SETS OF SWITCH-LEGS FOR POLE S4),19,21,23,25,27,29,31), 1#8 GND. BURY 24" BELOW GRADE.
10. PROVIDE 2"C-11#8 (MMS1-13,15,17 (2 SETS OF SWITCH-LEGS FOR POLE S4),19,21,23,31), 1#8 GND. BURY 24" BELOW GRADE.
11. PROVIDE 2"C-3#8 (MMS1-13,15,17 (2 SETS OF SWITCH-LEGS FOR POLE S4), 31), 1#8 GND. BURY 24" BELOW GRADE.

4

12. PROVIDE 2"C-9#6 (MMS1-1,3,5,7,9,11,2,4,6), 3#8 (MMS1-31,33),1#8 GND. BURY 24" BELOW GRADE.
13. PROVIDE 2"C-6#6 (MMS1-1,3,5,7,2,4,6), 3#8 (MMS1-31,33),1#8 GND. BURY 24" BELOW GRADE.
14. PROVIDE 2"C-3#6 (MMS1-2,4,6), 2#8 (MMS1-33),1#8 GND. BURY 24" BELOW GRADE.
15. PROVIDE 2"C-3#6 (MMS1-8,10,12),1#8 GND. BURY 24" BELOW GRADE.

4

16. PROVIDE 2"C-9#6 (MMS1-8,10,12,14,16 (2 SETS OF SWITCH-LEGS FOR POLE S9),18), 2#8 (MMS1-33),1#8 GND. BURY 24" BELOW GRADE.
17. PROVIDE 2"C-3#6 (MMS1-20,22,24),1#8 GND. BURY 24" BELOW GRADE.
18. PROVIDE 1 1/4"C-3#4, 1#8 GND. BURY 24" BELOW GRADE.
19. PROVIDE 2"C-6#6 (MMS1-20,22,24), 5#8 (MMS1-26,28,30,33),1#8 GND. BURY 24" BELOW GRADE.
20. PROVIDE 1"C-2#8, 1#10 GND. BURY 24" BELOW GRADE.
21. PROVIDE 3/4"C-2#10, 1#10 GND. BURY 24" BELOW GRADE. FUTURE SIGN POWER. JUNCTION BOX SHALL BE RECESSED INTO SIDE OF COLUMN, WITH 1/2" PVC STUBBED TO TOP OF COLUMN, EXPOSED AND CAPPED.

LEGEND

Symbol	Description
(line)	BELOW GRADE ELECTRICAL CONDUIT AND WIRE RUN. SEE PLANS FOR TYPE AND # OF WIRES.
(boxed X)	SCE SERVICE POINT. VERIFY EXACT LOCATION WITH UTILITY WORK ORDER.
MMS-1	400A, 3Ø, 4W, 277/480V SWITCHGEAR MMS1. SEE PLAN FOR LOCATION AND A/EL-03 FOR SCHEDULES AND DETAILS
(pullbox)	CONCRETE UNDERGROUND PULLBOX. SEE SPEC. 1 AND DETAIL B/EL-03.
MMS1-1	CIRCUIT DESIGNATION. 1ST # INDICATES PANEL. REMAINING #'S INDICATE CIRCUIT POSITIONS.
S1	TYPE 'A', 9 HEAD MUSCO SPORT LIGHT WITH POLE DESIGNATION.
(type B)	TYPE 'B', SITE LIGHT. SEE SCHEDULE AND DETAIL E/EL-03
(type C)	TYPE 'C', SITE LIGHT ATTACHED TO MUSCO SPORT LIGHT WITH POLE SEE SCHEDULE AND DETAIL E/EL-03
I (triangle)	IRRIGATION CONTROLLER. VERIFY EXACT LOCATION.
P	IRRIGATION BOOSTER PUMP. VERIFY EXACT LOCATION.
J	JUNCTION BOX FOR FUTURE SIGN CONNECTION.

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SPORTS FIELDS AT 555 MAPLE AVENUE

City of Torrance, California 90503

Electrical Plans

Tract #

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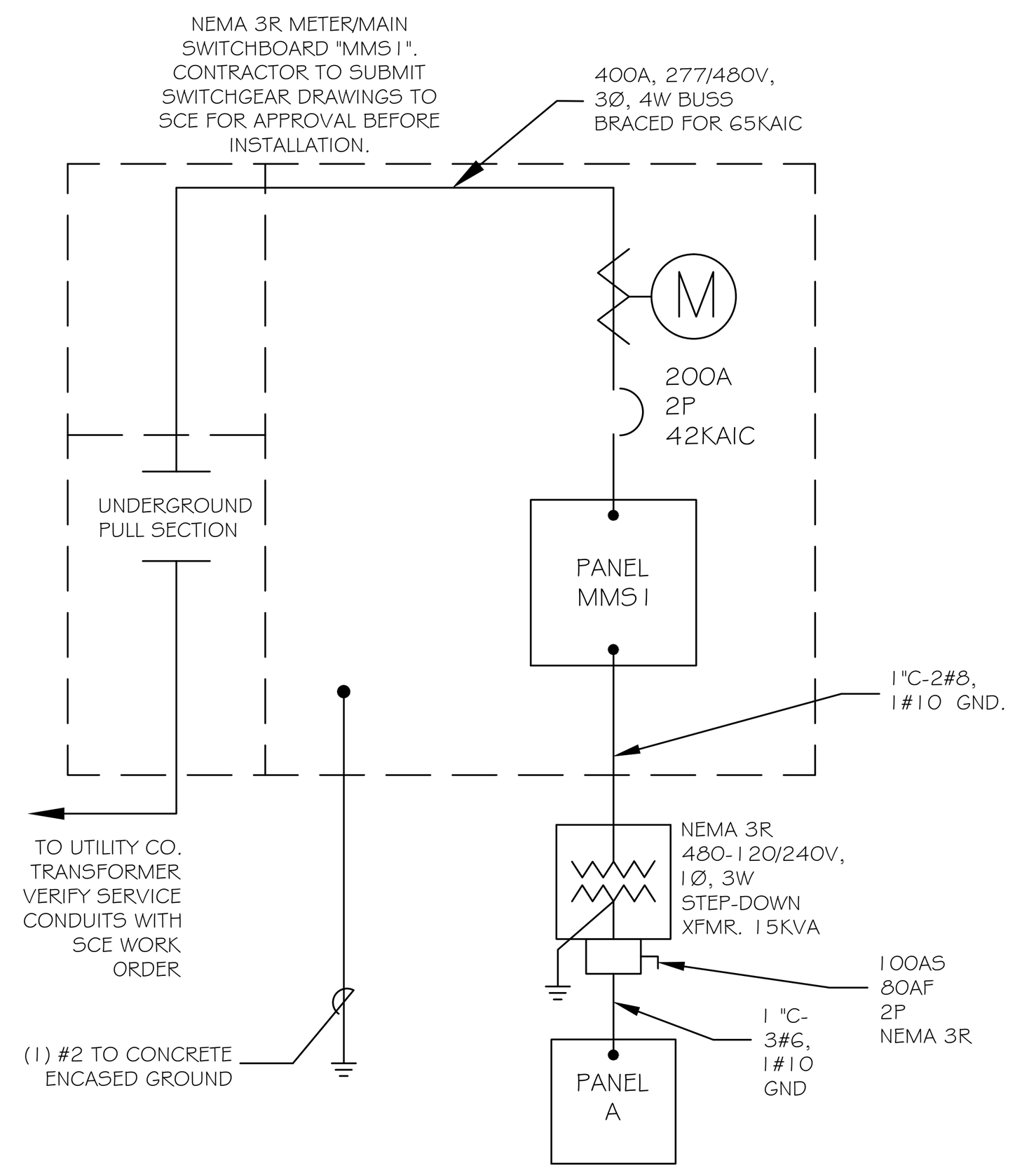
7297 Ronson Rd. Suite C | San Diego, Ca. 92111
WWW.VISUALCONCEPTS-INC.COM

project manager: K. PEREZ
approved by: M. NIEDERHAUS
drawn by: K. PEREZ
date: 08/14/13
scale: 1"=30'

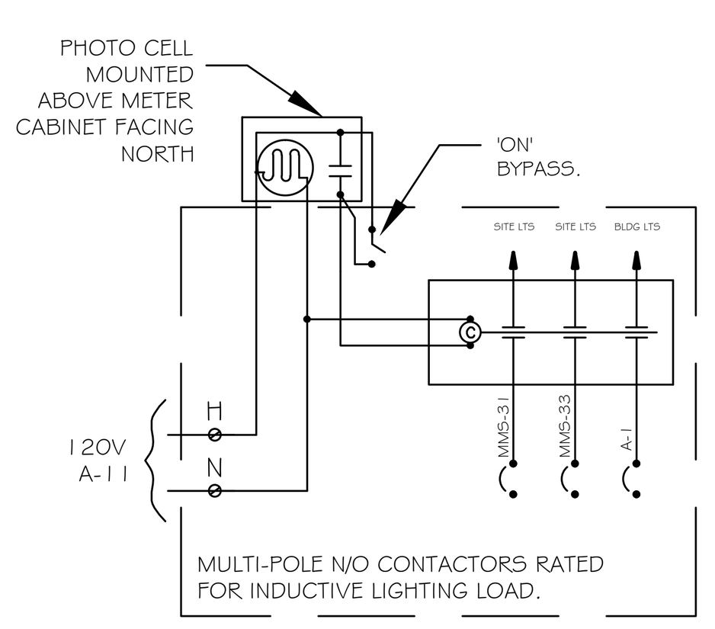
SHEET 2 of 4

City of Torrance: 555 Maple Sports Field



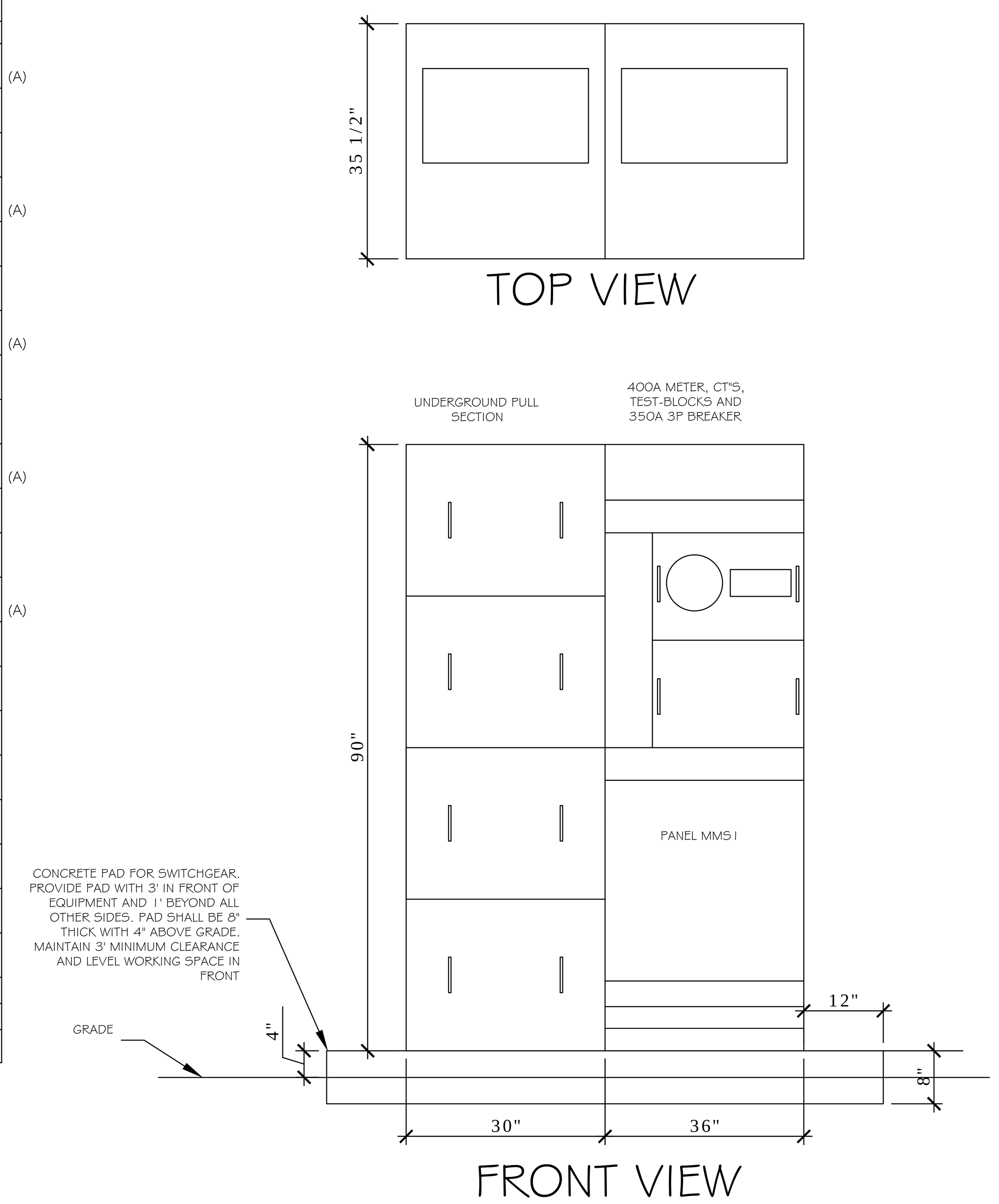
PANEL: MMS1	VOLT: 277/480V, 3Ø, 4W						BUS: 200A						MAIN:	
FIELD	MTG: SURFACE						AIC: 65,000						MLO	
LOCATION	LTG	REC	MIS	BKR	#	ØA	ØB	ØC	#	BKR	MIS	REC	LTG	LOCATION
(A) SOCCER FIELD POLE S2	9			40	1	5400 / 5400			2	40			9	SOCCER FELD POLE S1 (A)
					3		5400 / 5400		4					
				3	5			5400 / 5400	6	3				
(A) SOCCER FIELD POLE S3	9			40	7	5400 / 5400			8	40			9	SOCCER FELD POLE S10 (A)
					9		5400 / 5400		10					
				3	11			5400 / 5400	12	3				
(A) SOCCER FIELD POLE S4	9			40	13	5400 / 5400			14	40			9	SOCCER FELD POLE S9 (A)
					15		5400 / 5400		16					
				3	17			5400 / 5400	18	3				
(A) SOCCER FIELD POLE S5	9			40	19	5400 / 5400			20	40			9	SOCCER FELD POLE S8 (A)
					21		5400 / 5400		22					
				3	23			5400 / 5400	24	3				
(A) SOCCER FIELD POLE S6	9			40	25	5400 / 5400			26	40			9	SOCCER FELD POLE S7 (A)
					27		5400 / 5400		28					
				3	29			5400 / 5400	30	3				
(B) SITE LIGHTS	3			20	31	405 / 2592			32	40				XFMR T1
(B) SITE LIGHTS	4			20	33		540 / 2520		34	2				
					35				36	3				
					37				38					SPACE ONLY
					39				40					SPACE ONLY
SPACE ONLY					41				42					SPACE ONLY
CONNECTED VA:					A: 56997		B: 57060		C: 55760		TOTAL: 16817			
CONNECTED VA W/LCL:					A: 71246		B: 71325		C: 69700					
					TOTAL AMPS: 204.2				HIGH Ø W/LCL: 257.5					

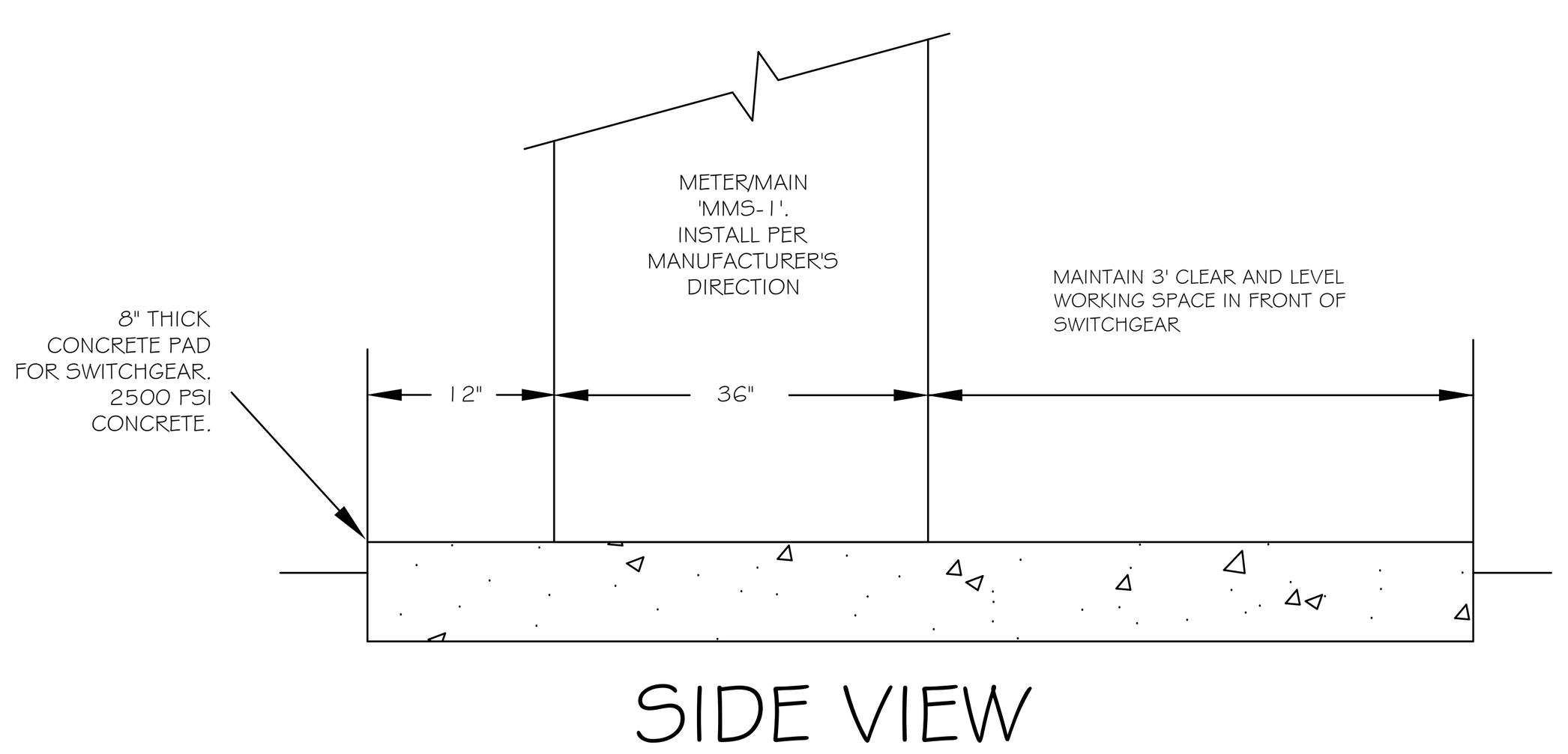
(A) LIGHTING CIRCUIT CONTROLLED BY MUSCO SPORT LIGHTING CONTROLS
(B) LIGHTING CIRCUIT CONTROLLED BY LIGHTING CONTACTOR AT RESTROOM BUILDING



PANEL PROVIDED BY BUILDING MANUFACTURER

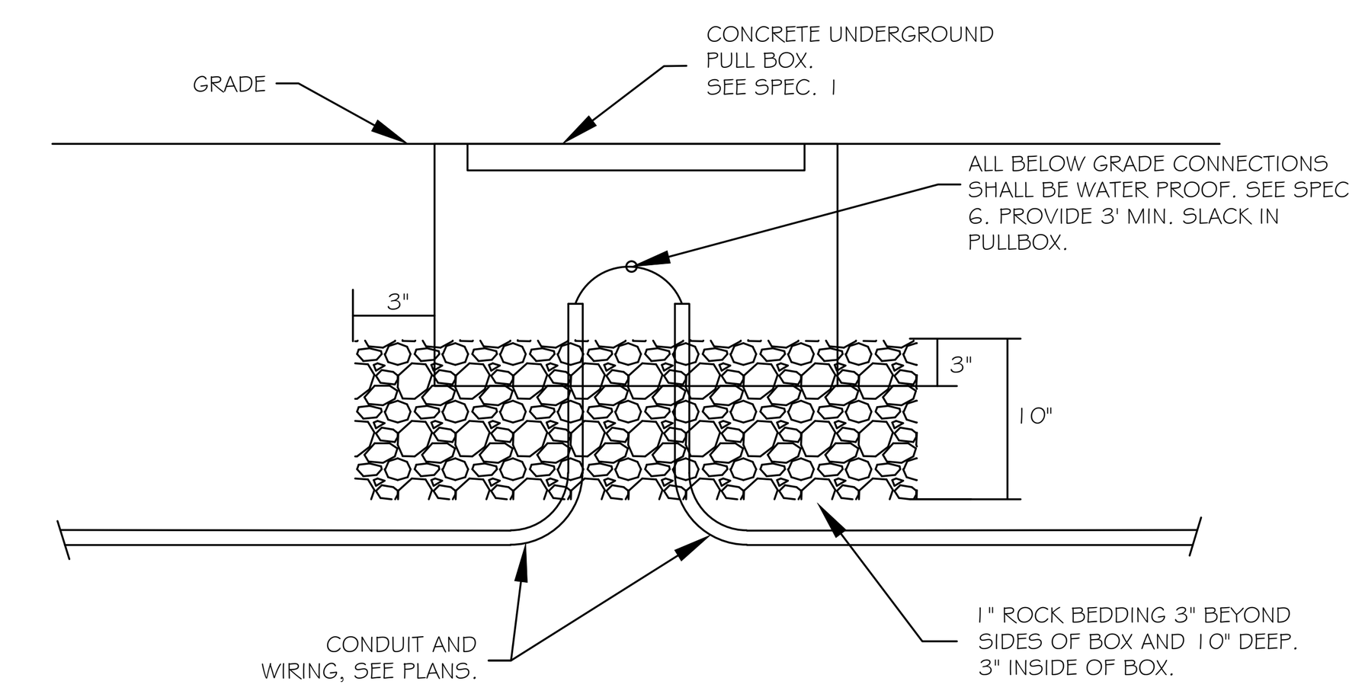
MOUNTING: SURFACE			PANEL A											LOCATION: RESTROOM		
VOLTAGE: 120/240			PHASE: 1		WIRE: 3		AIC SYM: 10,000							BUS: 100A	MAIN: 50A, 2P	
LOCATION	WATTAGE ØA	WATTAGE ØB	LTG	MIS	POL	BKR	CIR	PH	CIR	BKR	POL	MIS	LTG	WATTAGE ØA	WATTAGE ØB	LOCATION
BUILDING LIGHTS	252		5		1	20	1	A	2							SPACE
HAND DRYER		1800		1	1	20	3	B	4							SPACE
HAND DRYER	1800			1	1	20	5	A	6							SPACE
IRR. CONT.		540		1	1	20	7	B	8							SPACE
MUSCO CONT.	540						9	A	10							SPACE
LTG. CONT.		180					11	B	12							SPACE
	2592	2520				WATTS/LINE								0	0	
TOTAL ØA: 2592 WATTS / TOTAL ØB: 2520 WATTS			TOTAL WATTS: 5112 / PANEL AMPS: 21.3 / HIGH PHASE LCL AMPS: 27.0											BREAKERS SHALL BE SERIES RATED AND MARKED ACCORDING TO NEC.		





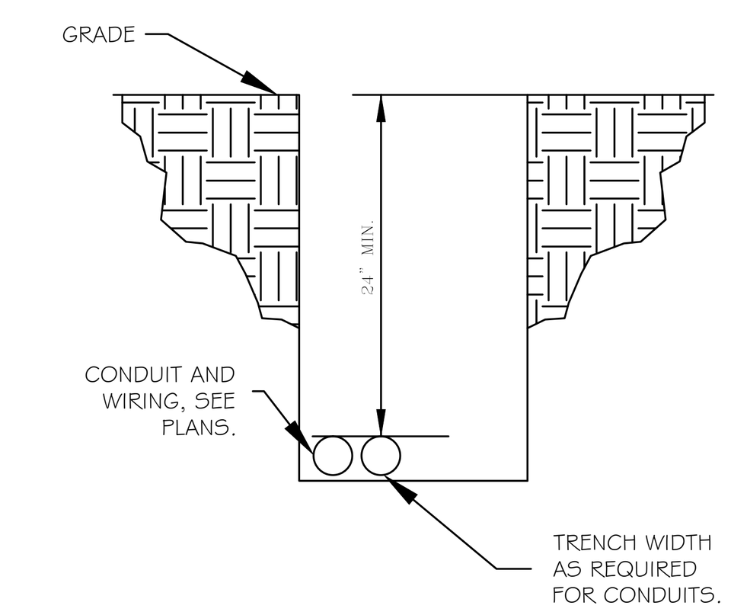
NO SCALE

(A) SWITCHGEAR INSTALLATION DETAIL



NO SCALE

(B) PULL BOX INSTALLATION DETAIL



BACKFILL MATERIAL:
THE MATERIAL USED FOR BACKFILLING THE TRENCH ABOVE THE SHADING MATERIAL AND EXTENDING UPWARD TO THE SUBGRADE SHALL BE FREE OF ROCKS OR CLODS LARGER THAT 6" IN ANY DIMENSION. THE COARSE MATERIAL SHALL BE WELL DISTRIBUTED THROUGHOUT THE FINER MATERIAL. THE AMOUNT OF ROCKS OR CLODS SHALL BE LIMITED, IN THE OPINION OF THE INSPECTOR. THE BACKFILL MATERIAL SHALL MEET THE REQUIREMENTS OF ALL APPLICABLE CODES, ORDINANCES AND CITY STANDARDS AND BE FREE OF DEBRIS AND ORGANIC MATTER. SLURRY BACKFILL MAY BE REQUIRED BY CITY INSPECTOR. CHECK WITH CITY PRIOR TO START OF CONSTRUCTION.

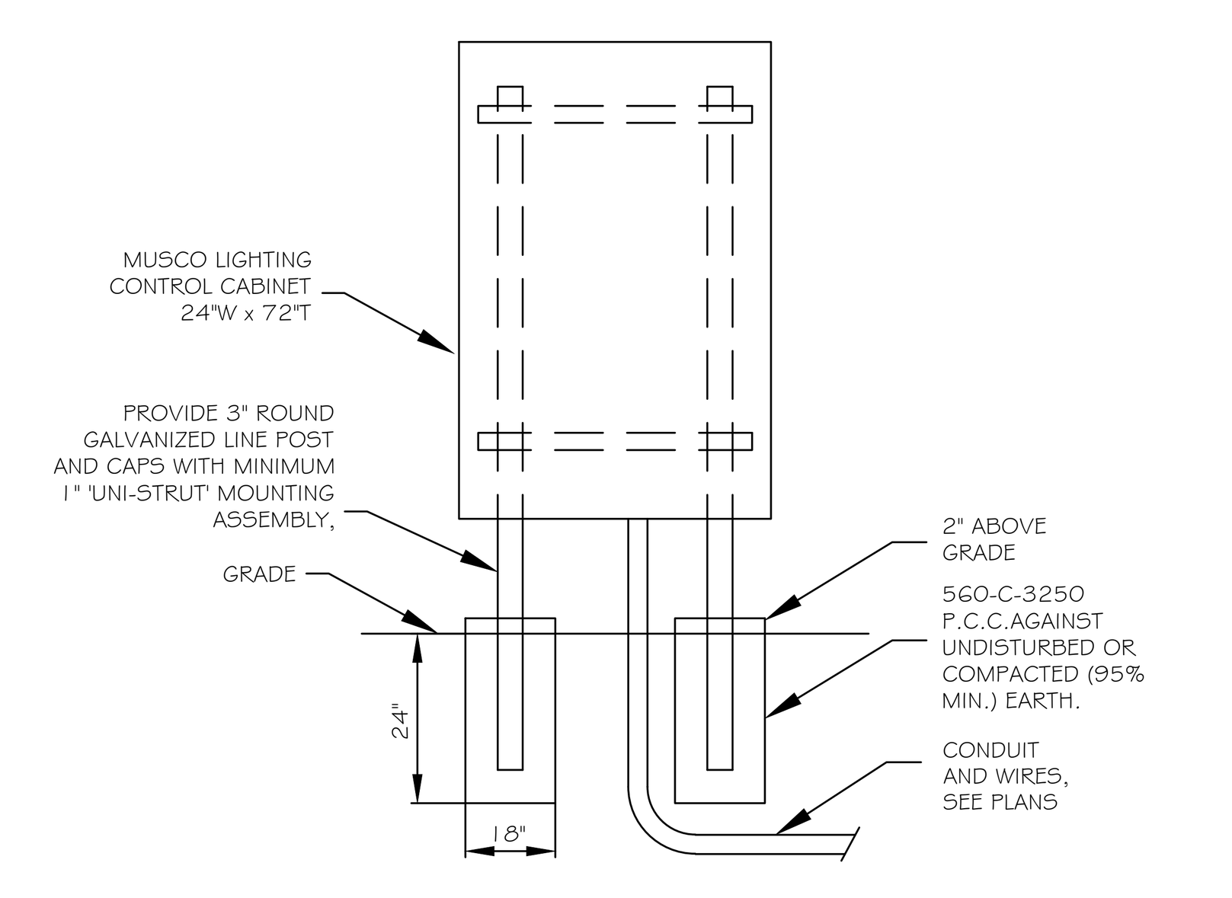
SHADING MATERIAL AND INSTALLATION:
NATURAL SAND, MANUFACTURED SAND, DECOMPOSED GRANITE, ROCK FREE SANDY LOAM, EXISTING NATIVE MATERIAL OR COMBINATION THEREOF. AGGREGATE MATERIAL SHALL BE CAPABLE OF PASSING THROUGH A ½" SIEVE. GRAVEL SHALL NOT AMOUNT TO MORE THAN 50% OF MIXTURE. SCREENING OR OTHER SUITABLE MEANS MAY BE REQUIRED AT THE INSPECTORS DISCRETION.
THE EARTH TRENCH BOTTOM SHALL BE STABLE WITH A UNIFORM GRADE CONTAINING NO HARD CLODS, ROCKS, AND ETCETERA. THAT MAY DAMAGE THE CONDUIT. IF IN THE OPINION OF THE INSPECTOR, THE CONDUIT MAY BE DAMAGED DURING COMPACTION, A 3" SHADE OF MATERIAL ABOVE AND BELOW THE CONDUIT MAY BE REQUIRED.

COMPACTION:
SHADING AND BACKFILL SHOULD BE COMPACTED IN ACCORDANCE WITH GOVERNMENTAL AGENCIES AND SHALL HAVE A MINIMUM OF 90% RELATIVE COMPACTION. VERIFY REQUIREMENTS WITH INSPECTOR.

NOTE TO CONTRACTOR:
FOLLOW SDG&E WORK ORDERS FOR UTILITY TRENCH REQUIREMENTS.

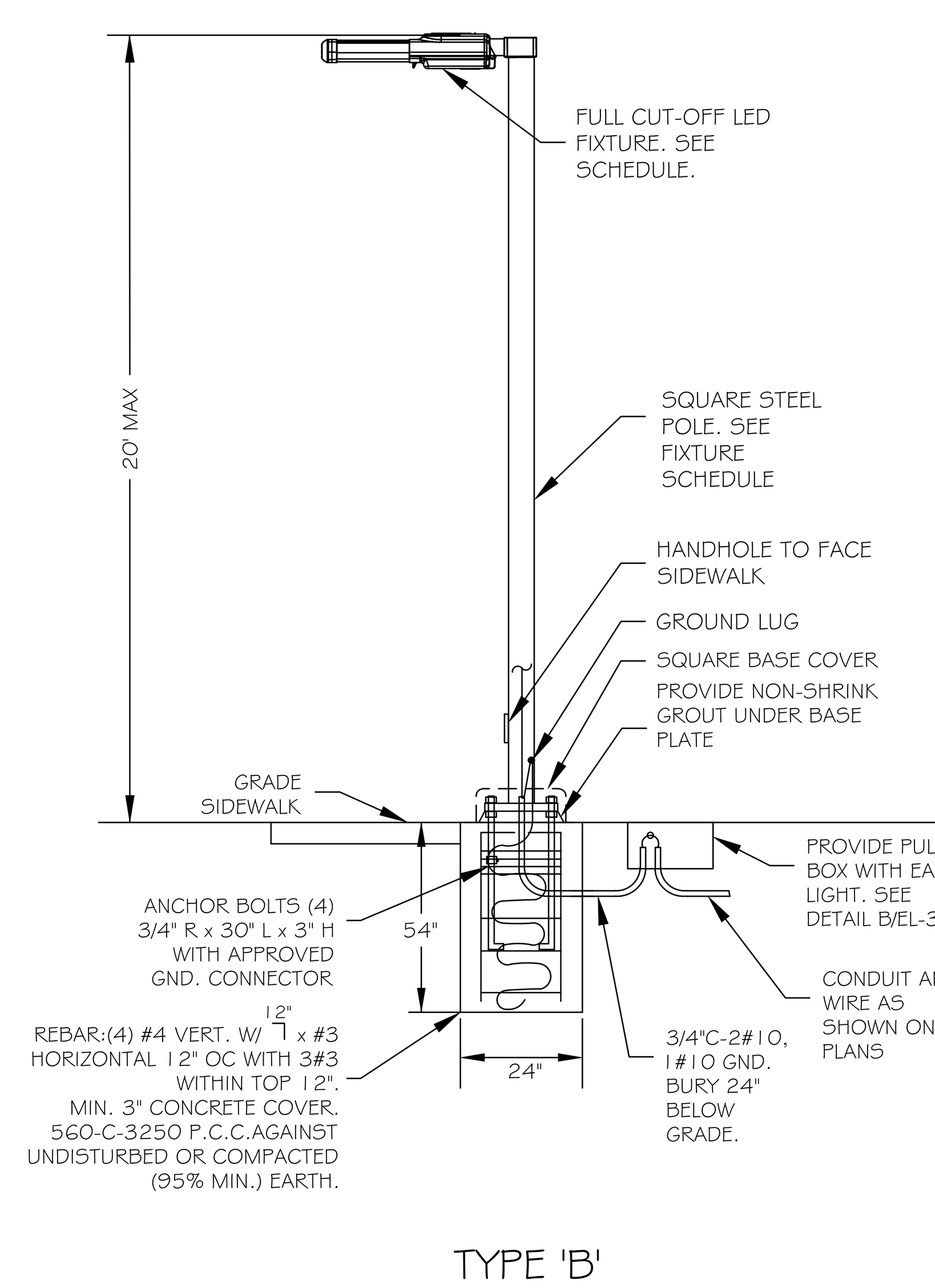
NO SCALE

(C) TRENCH INSTALLATION DETAIL

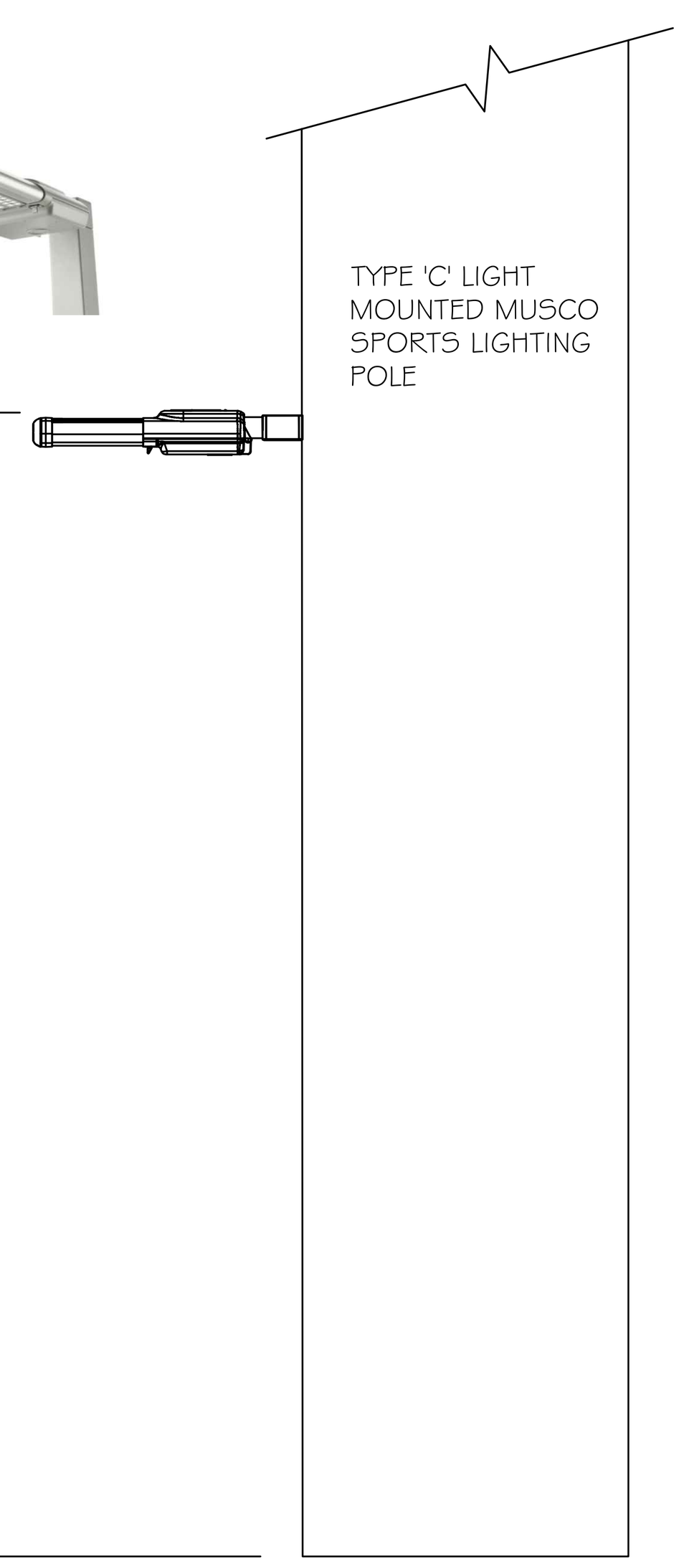


NO SCALE

(D) MUSCO CONTROL CABINET INSTALLATION DETAIL



TYPE 'B'



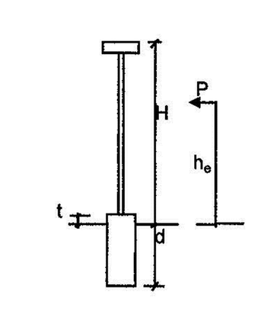
TYPE 'C'

TYPE 'B' SITE LIGHT STRUCTURAL CALCULATIONS

q_z= 0.00256* Kz *Kzt * Kd * V^2 * I = 17.3 Psf

Kz= 0.98 Expoure= C
Kzt= 1
Kd= 0.85
I= 1
V= 90 Mph

F= qz * G * Cf * Af = 20.6 Af psf
G= 0.85
Cf= 1.4



Allowable Laeral Soil pressure Ps = 100 pcf
Allowable lateral soil bearing pressure S_1=2xPsx1.33xd/3
light size= 0.44 'x 2.3 '= 1.0 ft² (Fixtures and Arms)
light pole Dia= 0.47 ft
pilaster dim.= 24 in
pilaster above the ground hight= 0 ft
light pole hight **H** = 20 ft

Determine total lateral force **P** & distance h_e from ground to force **P**

	wind		Area		force		h		force x h
light=	20.6	x	1	=	20.57	x	20	=	411.3
light pole=	20.6	x	8.32	=	171	x	8.85	=	1513.3
footing above=	20.6	x	0	=	0	x	0	=	0.0
					191.6				1924.6

P= 191.56 lb h_e = 10.05 ft

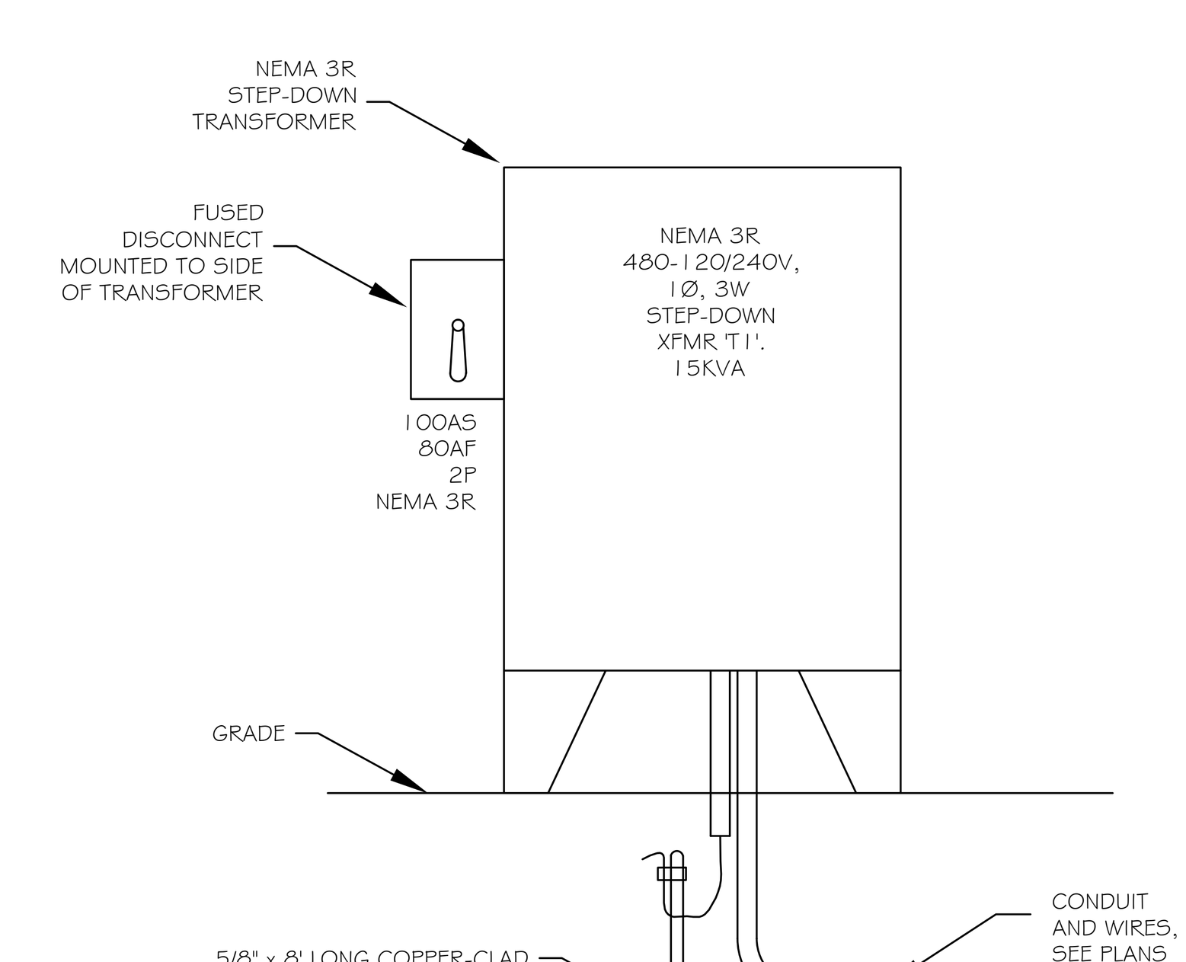
try footing **d**= 4.5 ft
$S_{1=2xPsx1.33xd/3=}$ 399 pcf
A=2.34xP/(S_1xB)= 0.56 ft
d=A/2x(1+(1+4.36xh_e/A)$^{1/2}$)= 2.78 ft < 4.5 ft **O.K**

Use 24 " Dia x 4.5 ft deep footing

REGISTERED PROFESSIONAL ENGINEER CHECK M. NG NO. 2325 EXP. 3.31.13 STRUCTURAL STATE OF CALIFORNIA

NO SCALE

(E) TYPE 'B', 'C' SITE LIGHT INSTALLATION DETAIL



NO SCALE

(F) TRANSFORMER INSTALLATION DETAIL

LDC12/04271

REGISTERED PROFESSIONAL ENGINEER MILTON C. NIEDERHAUS No. E 8636 ELECTRICAL EXP. 9/14 STATE OF CALIFORNIA

REVISIONS

1. 1ST SUBMITTAL 6-10-13
2. CITY PLAN CHECK REV. 7-23-13
3. PLAN REV. 8-28-13
4. PLAN REV. 8-29-13

SPORTS FIELDS AT 555 MAPLE AVENUE

City of Torrance, California 90503

Electrical Plans

Tract #

City of Torrance
3031 Torrance Blvd.
Torrance, CA 90503
(310) 781-7559

VISUAL CONCEPTS
-PRODUCERS OF LIGHTING FUSION-
ph:858-278-4503 fax:858-278-4573
7297 Ronson Rd. Suite C | San Diego, Ca. 92111
WWW.VISUALCONCEPTS-INC.COM

project manager: K. PEREZ
approved by: M. NIEDERHAUS
drawn by: K. PEREZ
date: 08/14/13
scale: N/A

SHEET 3 of 4

City of Torrance: 555 Maple Sports Field

musco Lighting

Control System Summary

Project Information

Project Specific Notes:

Project #:	163165
Project Name:	555 Maple Ave
Date:	08/23/13
Project Engineer:	J Stout
Sales Representative:	Mike Marchetti
Control System Type:	Control and Monitoring
Communication Type:	Digital Cellular
Scan:	163165-H
Distribution Panel Location or ID:	Soccer Area
Total # of Distribution Panel Locations for Project:	1
Design Voltage/Hertz/Phase:	480/60/3
Control Voltage:	120

Equipment Listing

DESCRIPTION	APPROXIMATE SIZE
1.Control and Monitoring Cabinet	24 X 72
2.Surge Protection Device	6 X 10

	QTY	SIZE
Total Contactors	12	30 AMP
Total Off/On/Auto Switches:	2	

Preliminary Plans: Confirm all Details - voltage, # of distribution panels, etc.

Materials Checklist

Contractor/Customer Supplied:

- ❑ A single control circuit must be supplied per distribution panel location.
  - — If the control voltage is NOT available, a control transformer is required.
- ❑ Electrical distribution panel to provide overcurrent protection for circuits
  - — Thermal/Magnetic circuit breaker sized per full load amps on Circuit Summary by Zone Chart
- ❑ Wiring:
  - — Dedicated control power circuit
  - — Power circuit to and from lighting contactors
  - — Monitoring circuit from surge protection device to Control and Monitoring cabinet 1
  - — Harnesses for cabinets at remote locations
  - — Means of grounding, including lightning ground protection
- ❑ Electrical conduit wireway system
  - — Entrance hubs rated NEMA 4: must be die-cast zinc, PVC, or copper-free die-cast aluminum
- ❑ Mounting hardware for cabinets
- ❑ Control circuit lock-on device to prevent unauthorized power interruption to control power
- ❑ Anti-corrosion compound to apply to ends of wire, if necessary

Call Control-Link Central(TM) operations center at 877/347-3319 to schedule activation of the control system upon completion of the installation. Note: Activation may take up to 1 1/2 hours

IMPORTANT NOTES

1. Please confirm that the design voltage listed above is accurate for this facility. Design voltage/phase is defined as the voltage/phase being connected and utilized at each lighting pole's ballast enclosure disconnect. Inaccurate design voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.
2. In a 3 phase design, all 3 phases are to be run to each pole. When a 3 phase design is used Musco's single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each pole. When a pole has multiple circuits, one contactor is required for each circuit. All contactors are UL 100% rated for the published continuous load. All contactors are 3 pole.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
5. A single control circuit must be supplied per control system.
6. Size overcurrent devices using the full load amps column of the Circuit Summary By Zone chart- Minimum power factor is 0.9.

NOTE: Refer to Installation Instructions for more details on equipment information and the installation requirements

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PROJECT INFORMATION MATERIALS CHECKLIST, EQUIPMENT LISTING

musco Lighting

Control System Summary

555 Maple Ave / 163165 - 163165-H
Soccer Area - Page 4 of 4

PANEL SUMMARY

CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID (BY OTHERS)	CIRCUIT BREAKER POSITION (BY OTHERS)
1	1	C1	Pole S1	22.20	MMS1	2,4,6
1	1	C2	Pole S2	22.20	MMS1	1,3,5
1	1	C3	Pole S3	22.20	MMS1	7,9,11
1	1	C4	Pole S4	14.80	MMS1	13,15,17
1	1	C5	Pole S9	11.10	MMS1	14,16,18
1	1	C6	Pole S10	22.20	MMS1	8,10,12
1	1	C7	Pole S4	11.10	MMS1	13,15,17
1	1	C8	Pole S5	22.20	MMS1	19,21,23
1	1	C9	Pole S6	22.20	MMS1	25,27,29
1	1	C10	Pole S7	22.20	MMS1	26,28,30
1	1	C11	Pole S8	22.20	MMS1	20,22,24
1	1	C12	Pole S9	14.80	MMS1	14,16,18

ZONE SCHEDULE

ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	CIRCUIT DESCRIPTION POLE ID	CIRCUIT DESCRIPTION CONTACTOR ID
Zone 1	1	West Area	S1	C1
			S2	C2
			S3	C3
			S4	C4
			S9	C5
			S10	C6
Zone 2	2	East Area	S4	C7
			S5	C8
			S6	C9
			S7	C10
			S8	C11
			S9	C12

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PANEL SUMMARY, ZONE SCHEDULE

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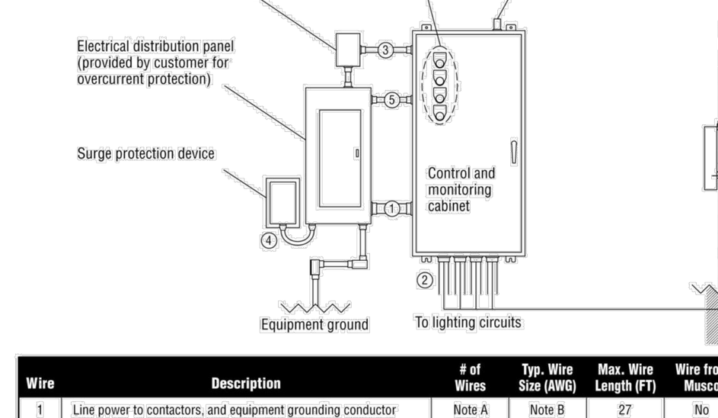
Control System Summary

555 Maple Ave / 163165 - 163165-H
Soccer Area - Page 2 of 4

Control•Link® Control and Monitoring System – Digital Cellular



Wire	Description	# of Wires	Typ. Wire Size (AWG)	Max. Wire Length (FT)	Wire from Musco	Notes
1	Line power to contactors, and equipment grounding conductor	Note A	Note B	27	No	A – E
2	Load power to lighting circuits	Note A	Note B	N/A	No	A – D
3	Control power (dedicated, 20A)	3	12	N/A	No	C, D
4	Surge protection device to distribution panel	– –	– –	N/A	Yes	F
5	Surge protection device monitoring	3	14	N/A	Yes	C, D, F

R60-25-00_D

Notes:
A. Voltage and phasing per the notes on cover page.
B. Calculate per load and voltage drop.
C. All conduit diameters should be per code.
D. Refer to control and monitoring system installation instructions for more details on equipment information and the installation requirements.
E. Contact Musco if maximum wire length from circuit breaker to contactor exceeds value in chart.
F. Refer to surge protection device installation instructions for more details on equipment information and the installation requirements.

IMPORTANT: Control (3) and monitoring (5) wires must be in separate conduit from line and load power wiring (1, 2).

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CONTROL-LINK, CONTROL AND MONITORING SYSTEM - DIGITAL CELLULAR

musco Lighting

Control System Summary

555 Maple Ave / 163165 - 163165-H
Soccer Area - Page 3 of 4

SWITCHING SCHEDULE

Field/Zone Description	Zones
Soccer Area	**1,2**
-West Area	1
-East Area	2

CONTROL POWER CONSUMPTION	
120V Single Phase	
VA loading of Musco Supplied Equipment	INRUSH: 3025.0
	SEALED: 397.0

BALLAST SPECIFICATIONS .90 Minimum Power Factor	VOLTAGE: 480v			THREE PHASE			
BALLAST OPERATING VOLTAGE	208	220	240	277	347	380	480
1500 Watt Metal Halide Lamp Operating line amperage per fixture- maximum	8.6	8.3	7.5	6.5	5.1	4.7	3.7
1000 Watt Metal Halide Lamp Operating line amperage per fixture- maximum	6.5	6.4	5.8	4.9	4.0	3.6	2.9

CIRCUIT SUMMARY BY ZONE

POLE	CIRCUIT DESCRIPTION	# OF FIXTURES	FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID	ZONE
S1	West Area	9	22.2	30	C1	1
S2	West Area	9	22.2	30	C2	1
S3	West Area	9	22.2	30	C3	1
S4	West Area	5	14.8	30	C4	1
S9	West Area	4	11.1	30	C5	1
S10	West Area	9	22.2	30	C6	1
S4	East Area	4	11.1	30	C7	2
S5	East Area	9	22.2	30	C8	2
S6	East Area	9	22.2	30	C9	2
S7	East Area	9	22.2	30	C10	2
S8	East Area	9	22.2	30	C11	2
S9	East Area	5	14.8	30	C12	2

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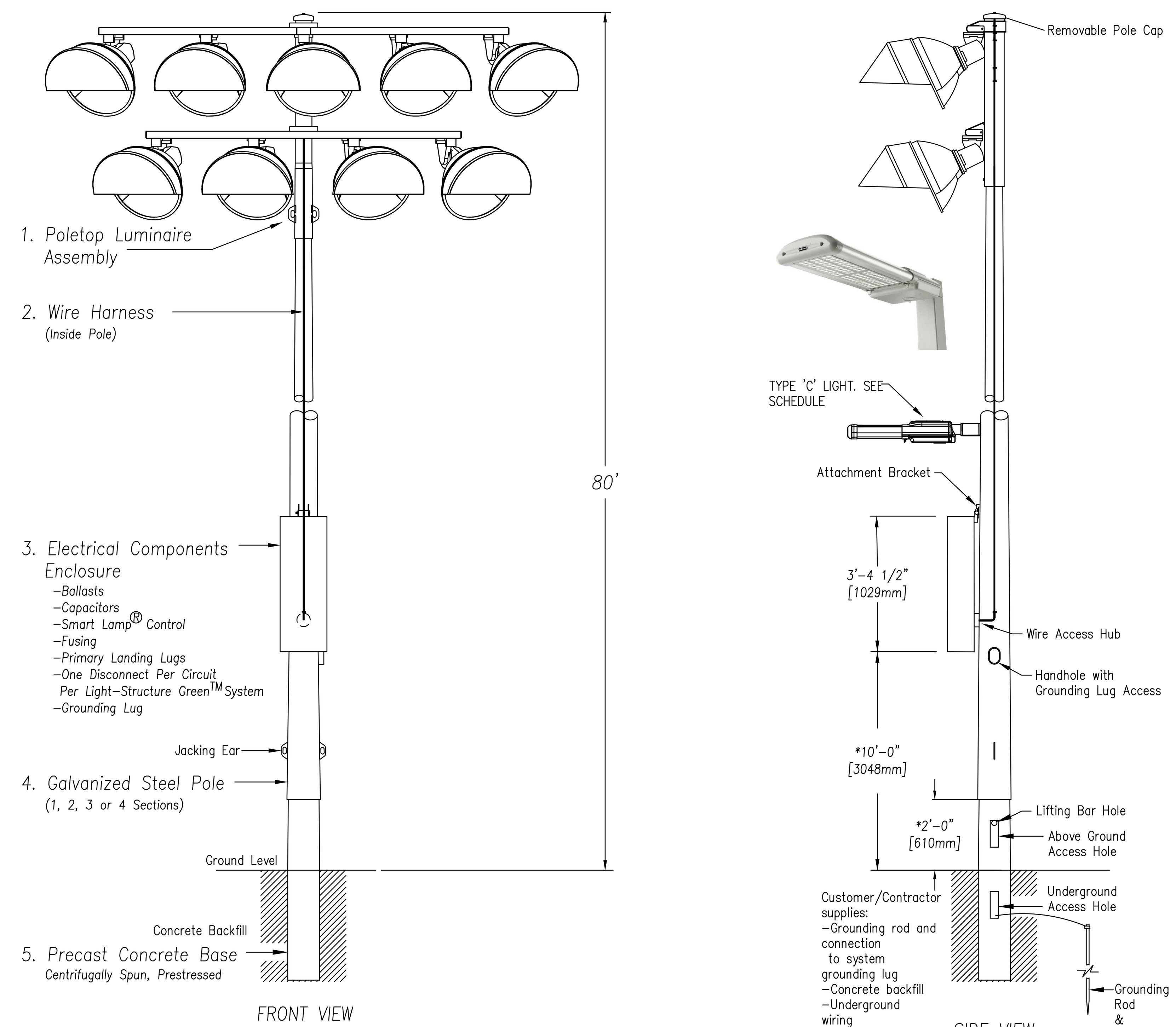
SWITCHING SCHEDULE, CIRCUIT SUMMARY



Notes:
1. This drawing is not to scale.
2. * This dimension for reference only. Variances may occur depending on steel pole tolerances, concrete tolerances, galvanizing thickness, hole depth accuracy.
3. Musco provides a base installation bar, an installation level modified for taper, and installation wedges.
4. Provisions for auxiliary equipment such as speaker or security lighting can be incorporated.
5. Copyright 1991, 2007, 2008 Musco Lighting. Patents issued and pending.

TYPE 'A' SPORTS LIGHT INSTALLATION DETAIL-9 LIGHTS PER POLE

LDC12/04271

REGISTERED PROFESSIONAL ENGINEER
MILTON C. NIEDERHAUS
No. E 8636
ELECTRICAL
EXP. 9/14
STATE OF CALIFORNIA

REVISIONS

1. 1ST SUBMITTAL 6-10-13
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-PRODUCERS OF LIGHTING FUSION-

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project manager:
K. PEREZ
approved by:
M. NIEDERHAUS
drawn by:
K. PEREZ
date:
08/14/13
scale:
N/A

SHEET
4 of 4

City of Torrance: 555 Maple Sports Field